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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,063	10/24/2000	Linda Gillian Durrant	0380-P02286U	5686

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EXAMINER	
SCHWADRON, RONALD B	

ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/623,063	DURRANT ET AL.	
	Examin r	Art Unit	
	Ron Schwadron, Ph.D.	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *42-53,64-67,71-73,75,76,80,90,95,102 and 103* is/are pending in the application.

4a) Of the above claim(s) *42-53,72,73,80 and 90* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *64-67,71,75,76,95,102 and 103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. Claims 64-67,71,75,76,95,102,103 are under consideration. Claims 64,65,67,71 have been amended. Regarding applicants comments about PCT Example 17, said example is drawn to a situation wherein the inventions exhibit a special technical feature. The claims as originally filed in the instant application lack a special technical feature for the reasons elaborated in paragraph 1 of the Office action mailed 6/26/2002. Regarding applicants comments about the MPEP section 1850, 37 CFR 1.475 states:

37 CFR 1.475. Unity of invention before the International Searching Authority, the International Preliminary Examining Authority and during the national stage.
*(a) An international and a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention "). **Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features.** The expression "special technical features " shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.*

The claims as originally filed in the instant application lack a special technical feature for the reasons elaborated in paragraph 1 of the Office action mailed 6/26/2002.

RESPONSE TO APPLICANTS ARGUMENTS

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 64-67,71,75,76,95,102,103 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support in the specification as originally filed for the recitation of "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek" in claim 64 (which recites that the peptide is the peptide of claim 42). Original claim 5 discloses an epitope *polymer* wherein the sequence is "substantially devoid of the amino acid sequence that occurs between the neighbouring epitopes". However, said disclosure is not a disclosure of a monomer epitope with said limitation. Furthermore, the specification lacks a definition of "substantially devoid" in the context recited in the claims. Said term also lacks an art recognized meaning in the context recited in the claims. Therefore, it is unclear whether said term and "substantially free" has the same meaning/scope in the context recited in the claims. Regarding applicants comments about the specification, page 4, the cited passage discloses:

By the terms "consists essentially of", it is intended to mean that peptides or polypeptides of the present invention consist largely of one or more sequences which represent epitopes of Tek protein, with little in the way of other sequences of the native Tek protein.

In view of the fact that the terms "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek" and "largely of one or more sequences which represent epitopes of Tek protein, with little in the way of other sequences of the native Tek protein" are not actually defined in the specification as to what size of peptide would or would not be encompassed by the aforementioned limitations, it is unclear as to whether the aforementioned terms are of the same scope or encompass different size peptides. To the extent that the terms are interpreted as encompassing different subsets of peptides, the limitation under consideration constitutes new matter. There is no support in the specification as originally filed for the scope of the claimed invention (eg. the claimed invention constitutes new matter).

4. Claims 64-67,71,75,76,95,102,103 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not provide adequate written description of the claimed invention. The legal standard for sufficiency of a patent's (or a specification's) written description is whether that description "reasonably conveys to the artisan that the inventor had possession at that time of the. . .claimed subject matter", Vas-Cath, Inc. V. Mahurkar, 19 U.S.P.Q.2d 1111 (Fed. Cir. 1991). In the instant case, the specification does not convey to the artisan that the applicant had possession at the time of invention of the claimed inventions.

The instant claims encompass immunogenic MHC binding Tek peptides derived from human Tek of Figure 1 in the specification. The art recognizes that there are hundreds of MHC class I and class II alleles in humans wherein said molecules bind different and largely nonoverlapping sets of peptides derived from the same protein. The specification only provides the identity peptides which bind a single class I allele (HLA-A2), and stimulate T cell proliferation (eg. are immunogenic). The specification also appears to disclose four peptides which bind several different class II (HLA-DR) alleles. However, the art recognizes that there are hundreds of MHC class I and class II alleles in humans wherein said molecules bind different and largely nonoverlapping sets of peptides derived from the same protein. Thus, the written description provided in the specification is not commensurate with the scope of the claimed inventions. In view of the aforementioned problems regarding description of the claimed invention, the specification does not provide an adequate written description of the invention claimed herein. See The Regents of the University of California v. Eli Lilly and Company, 43 USPQ2d 1398, 1404-7 (Fed. Cir. 1997). In University of California v. Eli Lilly and Co., 39 U.S.P.Q.2d 1225 (Fed. Cir. 1995) the inventors claimed a genus of DNA species encoding insulin in different vertebrates or mammals, but had only described a single species of cDNA which encoded rat insulin. The court held that only the nucleic acids species described in the specification (i.e. nucleic acids encoding rat insulin) met the description requirement and that the inventors were not entitled to a claim encompassing a genus of nucleic acids encoding insulin from other vertebrates,

mammals or humans, id. at 1240. The Federal Circuit has held that if an inventor is "unable to envision the detailed constitution of a gene so as to distinguish it from other materials. . .conception has not been achieved until reduction to practice has occurred", Amgen, Inc. v. Chugai Pharmaceutical Co, Ltd., 18 U.S.P.Q.2d 1016 (Fed. Cir. 1991). Attention is also directed to the decision of The Regents of the University of California v. Eli Lilly and Company (CAFC, July 1997) wherein is stated: The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 222 USPQ 369, 372-373 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material.

Thus, as we have previously held, a cDNA is not defined or described by the mere name "cDNA," even if accompanied by the name of the protein that it encodes, but requires a kind of specificity usually achieved by means of the recitation of the sequence of nucleotides that make up the cDNA. See Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606.

Regarding applicants comments, the art recognizes that there are hundreds of MHC class I and class II alleles in humans wherein said molecules bind different and largely nonoverlapping sets of peptides derived from the same protein. The specification only provides the identity of peptides which bind a single class I allele (HLA-A2), and stimulate T cell proliferation (eg. are immunogenic). The specification also appears to disclose four peptides which bind several different class II (HLA-DR) alleles. However, the art recognizes that there are hundreds of MHC class I and class II alleles in humans wherein said molecules bind different and largely nonoverlapping sets of peptides derived from the same protein. Thus, the written description provided in the specification is not commensurate with the scope of the claimed inventions. In view of the aforementioned problems regarding description of the claimed invention, the specification does not provide an adequate written description of the invention claimed herein.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 64-67,71,75,76,95,102,103 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants arguments have been considered and deemed

Claims 64,67 and 71 are indefinite in that they depend from nonelected claim 42. Regarding applicants comments, claims 64,67,71 depend from nonelected claim 42. Applicant is required to amend said claims such that they no longer depend from the nonelected claims.

Claim 64 is indefinite in the recitation of "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek". It is unclear what said limitation means or encompasses. Said term is not defined in the specification and has no art recognized meaning in the context recited in the claim. For example, it is unclear as to what number of actual amino acid residues outside the MHC-binding epitope would be encompassed by "substantially free of sequences". It is unclear if the aforementioned limitation would encompass an epitope plus 5 amino acids or 50 amino acids, etc.

Regarding applicants comments, applicants comments address the definition of "consists essentially of" as per page 4 of the specification. However, said term is not a definition of "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek". The specification does not define what "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek" means or encompasses. The specification does not disclose that said term is defined as per page 4, lines 5-7 of the specification. Therefore, applicants comments are irrelevant to the rejection under consideration.

Claim 64 is indefinite in the recitation of "consists essentially of". Said term is defined in the specification, page 4 as including the limitation "little in the way of other sequences of the native Tek protein". However, there is no definition in the specification

as to what "little in the way of other sequences of the native Tek protein" means or encompasses. The Tek protein contains 1124 amino acids. It is unclear as to to how many additional amino acids of said molecule could be contained in a peptide wherein the peptide would contain "little in the way of other sequences of the native Tek protein".

7. Regarding the term Tek as recited in the claims, the specification discloses that Tek (a.k.a. tie-2) is the protein disclosed in various prior art references recited in page 1 of the specification.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

9. Claims 64-67,71,75,76,95,102,103 are rejected under 35 U.S.C. 102(b) as being anticipated by Breitman et al. (US Patent 5,681,714) as evidenced by Rammensee et al.

Breitman et al. teach nucleic acids encoding fragments of Tek (see column 14, last two paragraphs). Breitman et al. teach that said nucleic acids can be incorporated in to suitable vectors/plasmids and host cells containing the necessary regulatory elements required for transcription/translation (see column 14 and 15). Breitman et al. teach Tek fragments that can be used to produce antibodies and recombinant production of said fragments (see column 18, first paragraph). Breitman et al. teach a DNA fragment encoding 43 amino acids of Tek which was subcloned into an appropriate expression vector/host cell (see column 34, third complete paragraph). In view of the fact that the claims encompass MHC binding peptides wherein the MHC molecule could be derived from any of at least hundreds of different known human MHC class I or II alleles, it would be reasonable to assume that at least one or more such MHC alleles would bind the peptide fragment encoded by the nucleic acid taught by Breitman et al. Furthermore, Rammensee et al. teach that MHC binding peptides usually contain certain defined anchor residues wherein the peptide taught by Breitman

et al. contains such anchor residues (eg. see Rammensee, page 213, HLA-DRB1, etc.). Thus, it is an inherent property of said peptide that it contains an MHC binding peptide. While it is not clear what "substantially free of sequences which are not part of said at least one MHC-binding epitope of Tek" means or encompasses, for the purposes of this rejection the term will be interpreted as meaning not containing a large majority of the nonMHC binding amino acids found in intact Tek (as per the 43 amino acid fragment taught by Breitman et al.). The peptide encoded by the nucleic acid taught by Breitman et al. stimulates an immune response (eg. induces antibody formation).

Regarding applicants comments about "substantially free ...", applicants comments address the definition of "consists essentially of" as per page 4 of the specification. However, said term is not a definition of "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek". The specification does not define what "substantially free of sequences of native human Tek protein which are not part of said at least one MHC-binding epitope of Tek" means or encompasses. The specification does not disclose that said term is defined as per page 4, lines 5-7 of the specification. Regarding applicants comments about the definition of "consists essentially of", there is no disclosure in the specification as to what "little in the way of other sequences of the native Tek protein" means or encompasses, so therefore it is unclear as to how applicant can argue what particular number of amino acids is or is not encompassed by said phrase.

Regarding applicants comments about HLA-B*2705, there are hundreds of different human MHC class I and II molecules that could potentially bind TEK derived peptides. The rejection states that because there are hundreds of different known human MHC class I and II alleles which bind different peptides derived from any particular protein, it would be reasonable to conclude that that at least one or more such MHC molecules would bind the peptide fragment encoded by the nucleic acid taught by Breitman et al. The Rammensee reference does not list motifs from all known human MHC class I and II alleles. The HLA_B*2705 motif is just one of numerous motifs listed in the Rammensee reference. The Rammensee reference discloses numerous MHC binding peptides wherein nonanchor residues are highly variable. In addition, the peptide disclosed by Breitman et al. also has a peptide which is encompassed by the HLA DRB1*0401 binding motif (see page 213 of Rammensee et al.).

10. No claim is allowed.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Ron Schwadron whose telephone number is (703) 308-4680. The examiner can normally be reached Monday through Thursday from 7:30 to 6:00. A message may be left on the examiners voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Christina Chan can be reached on (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is (703) 308-0196.

Ron Schwadron, Ph.D.
Primary Examiner
Art Unit 1644

RONALD B. SCHWADRON
PRIMARY EXAMINER
GROUP ~~1800~~ 1600